STATE OF DELAWARE
EXECUTIVE DEPARTMENT
OFFICE OF STATE PLANNING COORDINATION

August 21, 2013

Mr. Mark Davidson
Pennoni Associates, Inc.
18072 Davidson Drive
Milton, DE 19968

RE: PLUS review 2013-07-12, Delaware Botanical Gardens at Pepper Creek

Dear Mr. Davidson,

Thank you for meeting with State agency planners on July 24, 2013 to discuss the proposed plans for the Delaware Botanical Gardens. According to the information received, you are seeking site plan review for botanic gardens and a 132,260 sf visitor center and conservancy nature center, located on Piney Neck Road in Sussex County

Please note that changes to the plan, other than those suggested in this letter, could result in additional comments from the State. Additionally, these comments reflect only issues that are the responsibility of the agencies represented at the meeting. **The developers will also need to comply with any Federal, State and local regulations regarding this property. We also note that as Sussex County is the governing authority over this land, the developers will need to comply with any and all regulations/restrictions set forth by the County.**

Strategies for State Policies and Spending

- This parcel is listed as "Out of Play" according to the 2010 Strategies for State Policies and Spending. To the best of my knowledge the "Out of Play" designation was placed on this site due to the fact that it was owned by the Sussex County Land Trust. The areas surrounding this parcel are level 3; therefore, if the Sussex County Land Trust supports the development of this site as a Botanical Gardens, the State has no objections.

Code Requirements/Agency Permitting Requirements

State Historic Preservation Office – Contact Terrence Burns 736-7404

- There are no known historic or cultural resources such as an archaeological site or National Register-listed property on this parcel. However, if there is going to be any construction activity or development project on the parcel, the developer should be aware of Delaware's Unmarked Human Burials and Human Skeletal Remains Law, which is outlined in Chapter 54 of Title 7 of the Delaware Code.

Abandoned or unmarked family cemeteries are very common in the State of Delaware. They are usually in rural or open space areas, and sometimes near or within the boundary of an historic farm site. Even a marked cemetery can frequently have unmarked graves or burials outside of the known boundary line or limit. Disturbing unmarked graves or burials triggers Delaware's Unmarked Human Burials and Human Skeletal Remains Law (Delaware Code Title 7, Chapter 54), and such remains or discoveries can result in substantial delays while the procedures required under this law are carried out. If there is a discovery of any unmarked graves, burials or a cemetery, it is very costly to have them archaeologically excavated and the burials moved. The Division of Historical & Cultural Affairs recommends that owners and/or developers have a qualified archaeological consultant investigate their project area, to the full extent, to see if there is any unmarked cemetery, graves, or burial sites. In the event of such a discovery, the Division of Historical & Cultural Affairs also recommends that the plans be re-drawn to leave the full extent of the cemeteries or any burials on its own parcel or in the open space area of the development, with the responsibility for its maintenance lying with the landowner association or development. If you would like to know more information that pertains to unmarked human remains or cemeteries, please check the following websites for additional information: www.history.delaware.gov/preservation/umhr.shtml and www.history.delaware.gov/preservation/cemeteries.shtml .

- Prior to any demolition or ground-disturbing activities, the developer should consider hiring an archaeological consultant to examine the parcel for potential historic or cultural resources, such as a potential archaeological site, a cemetery or unmarked human remains.

- If there is any federal involvement with the project, in the form of licenses, permits, or funds, the federal agency, often through its client, is responsible for complying with Section 106 of the National Historic Preservation Act (36 CFR 800) and must consider their project's effects on any known or potential cultural or historic resources. Owners and developers who may plan to apply for an Army Corps of Engineers permit or for federal funding, such as HUD or USDA grants, should be aware of the National Historic Preservation Act of 1966 (as amended). Regulations promulgated for Section 106 of this Act stipulate that no ground-disturbing or demolition activities should take place before the Corps or other involved federal agency determines the area of potential effect of the project undertaking. These stipulations are in place to allow for comment from the public, the Delaware State Historic Preservation Office, and the Advisory Council for Historic Preservation about the project's effects on historic properties. Furthermore, any preconstruction activities without adherence to these stipulations may jeopardize the issuance of any permit or funds. If you need further information or additional details pertaining to the Section 106 process and the Advisory Council's role, please review the Advisory Council's website at www.achp.gov .

Department of Transportation – Contact Bill Brockenbrough 760-2109

- On April 26, 2013, DelDOT wrote to Sussex County to recommend that they not

require a Traffic Impact Study (TIS) for the proposed development. This recommendation was based on an April 8, 2013 letter from the applicants' engineer, Mr. Douglas Barry of Pennoni Associates. His analysis, contained in that letter, suggests that the proposed gardens would generate about 239 vehicle trip ends per day. Per Section 2.3 of the Standards and Regulations for Subdivision Streets and State Highway Access, TIS generally are not required for developments generating fewer than 400 vehicle trip ends per day or 50 vehicle trip ends per hour.

The plan accompanying the PLUS application shows 350 parking spaces by DelDOT's count and they understand from the discussion at the PLUS meeting that 110 spaces would be for full-time employees and 240 would be for visitors. As each employee would generate at least two trip ends per day, arriving and leaving, the 239 vehicle trip end mentioned above seems representative of a day when the gardens are staffed but not open to visitors.

As part of the plan approval process, DelDOT will require a better estimate of the average daily and weekday peak hour traffic, and possibly the weekend peak hour traffic depending on the expected use of the gardens. More generally, DelDOT needs to better understand how the gardens will operate. When DelDOT has these numbers and that understanding, they will re-evaluate the need for a TIS.

Because the site would generate more than 200 vehicle trip ends per day, a Traffic Operational Analysis (TOA) may be required as part of the site plan review, in accordance with Section 2.14 (formerly 3.9) of the Standards and Regulations. If a TIS is required, that will eliminate the need for a separate TOA but presently DelDOT expects to require either a TIS or a TOA.

- The site entrance must be designed in accordance with DelDOT's Standards and Regulations for Subdivision Streets and State Highway Access, which is available at http://www.deldot.gov/information/pubs_forms/manuals/subdivisions/pdf/Subdivision_Manual_Revision_1_proposed_060110.pdf.

- Metes and bounds and total areas need to be shown for any drainage easements. Section 5.7.2.5 of DelDOT's Standards and Regulations for Subdivision Streets and State Highway Access requires, in part, a minimum 20-foot wide drainage easement for storm drainage systems that fall outside the existing right-of-way or the drainage/utility easement. These easements must be shown on the record plan, not referenced by a note.

- Required entrance improvements, in accordance with Section 3.10.2 of DelDOT's Standards and Regulations for Subdivision Streets and State Highway Access include but are not limited to the following:

    - An overlay along Piney Neck Road, in which the overlay thickness will be determined at a later date. The limits of the overlay would be along the property frontage.

- Widening of Piney Neck Road to provide 11-foot wide travel lanes and 5-foot wide shoulders. The limits of the widening would be along the property frontage.
- Installation of a 10-foot wide shared use path along Piney Neck Road.
- Accommodation of bicycle and pedestrian facilities.

- In accordance with Section 3.4.1.2 of the Standards and Regulations for Subdivision Streets and State Highway Access, the Record Plan should show all existing entrances (residential/commercial) within 400-feet of the proposed site entrance.

- In accordance with Section 3.10 of the Standards and Regulations for Subdivision Streets and State Highway Access, the required off-site improvements and when they are warranted will need to be shown on the Record plan by note or illustration.

- In accordance with Section 3.6.5 and Figure 3-3 of the Standards and Regulations for Subdivision Streets and State Highway Access, DelDOT will require dedication of right-of-way along the site's frontage on Piney Neck Road (Sussex Road 336) to provide a minimum of 30 feet of right-of-way from the road centerline. The right-of-way dedication note has been revised to the following, "**An X-foot wide right-of-way is hereby dedicated to the State of Delaware, as per this plat.**" From the concept plan presented, it appears that the developer's site engineer has accounted for this requirement already.

- In accordance with Section 3.6.5 of the Standards and Regulations for Subdivision Streets and State Highway Access, DelDOT will require the establishment of a 15-foot wide permanent easement across the property frontage on Piney Neck Road for a future 10-foot wide pedestrian/bike path. The location of the easement shall be outside the limits of the ultimate right-of-way. The easement area can be used as part of the open space calculation for the site. The following note is required, "**A 15-foot wide permanent easement for a future 10-foot wide multi-use path is hereby established, as per this plat.**" From the concept plan presented, it appears that the developer's site engineer has accounted for this requirement already.

- In accordance with Section 4.8 of the Standards and Regulations for Subdivision Streets and State Highway Access, a 20-foot wide buffer will be required from the edge of any stormwater management pond to the ultimate right-of-way of the nearest State-maintained road. The ultimate right-of-way is based on the functional classification of the road. From the concept plan presented, DelDOT does not see a problem in this regard.

- As specified in Section 3.4.1.1 of the Standards and Regulations for Subdivision Streets and State Highway Access, a traffic generation diagram is required on the Record Plan.

- Refer to the Standards and Regulations for Subdivision Streets and State Highway Access, Appendix D – Plan Review Checklist, pages D-2 through D-39, for checklists associated with various types of plan submittal. For each plan submittal, submission of the appropriate checklist with the plan is required.

- Referring to the Standards and Regulations for Subdivision Streets and State Highway Access, Chapter 1 – Introduction, Section 1.4: Review Fees, page 1-8, the Initial Stage review fee shall be assessed to this project.

- In accordance with Section 3.4 of the Standards and Regulations for Subdivision Streets and State Highway Access, a record plan shall be prepared prior to issuing "Letter of No Objection". The following information will be required for the "Letter of No Objection" review:

  Copy of the Initial Stage Fee Calculation Form
  Copy of the Initial Stage Review Fee
  Gate-Keeping Checklist – Site Plan
  Design Checklist – Site Plan*
  Owners and Engineer's name and e-mail address
  Sight Distance Spreadsheet
  Auxiliary Lane Spreadsheet
  Three (3) paper sets of the Record Plan
  Conceptual Entrance Plan
  CD with a pdf of the Site Plan
  Submission of the Area-Wide Study Fee (if applicable)

- For the design checklist for the site plan, please refer to the Standards and Regulations for Subdivision Streets and State Highway Access, Appendix D, Plan Review Checklist, page D-2 and D-3.

- Referring to the Standards and Regulations for Subdivision Streets and State Highway Access, Chapter 1 – Introduction, Section 1.4: Review Fees, page 1-8, the Construction Stage review fee shall be assessed to this project.

- Referring to the Standards and Regulations for Subdivision Streets and State Highway Access, Chapter 4 – Construction Plans, Section 4.3: Subdivision Construction Plan Checklist or Section 4.4: Commercial Entrance Plan Checklist, an entrance plan shall be prepared prior to issuing entrance approval. The following information will be required for Subdivision/Entrance Plan review;

  Copy of the Construction Stage Fee Calculation Form
  Copy of the Construction Review Fee
  Gate-Keeping Checklist – Entrance Plan
  Design Checklist – Entrance Plan**
  Three (3) paper sets of the Entrance Plan
  SWM Report and Calculations (If applicable)
  CD with a pdf of the Entrance Plan

- For the design checklist for the entrance plan, please refer to the Standards and Regulations for Subdivision Streets and State Highway Access, Appendix D, Plan Review Checklist, page D-9 and D-13.

Department of Natural Resources and Environmental Control – Contact Kevin Coyle 735-3495

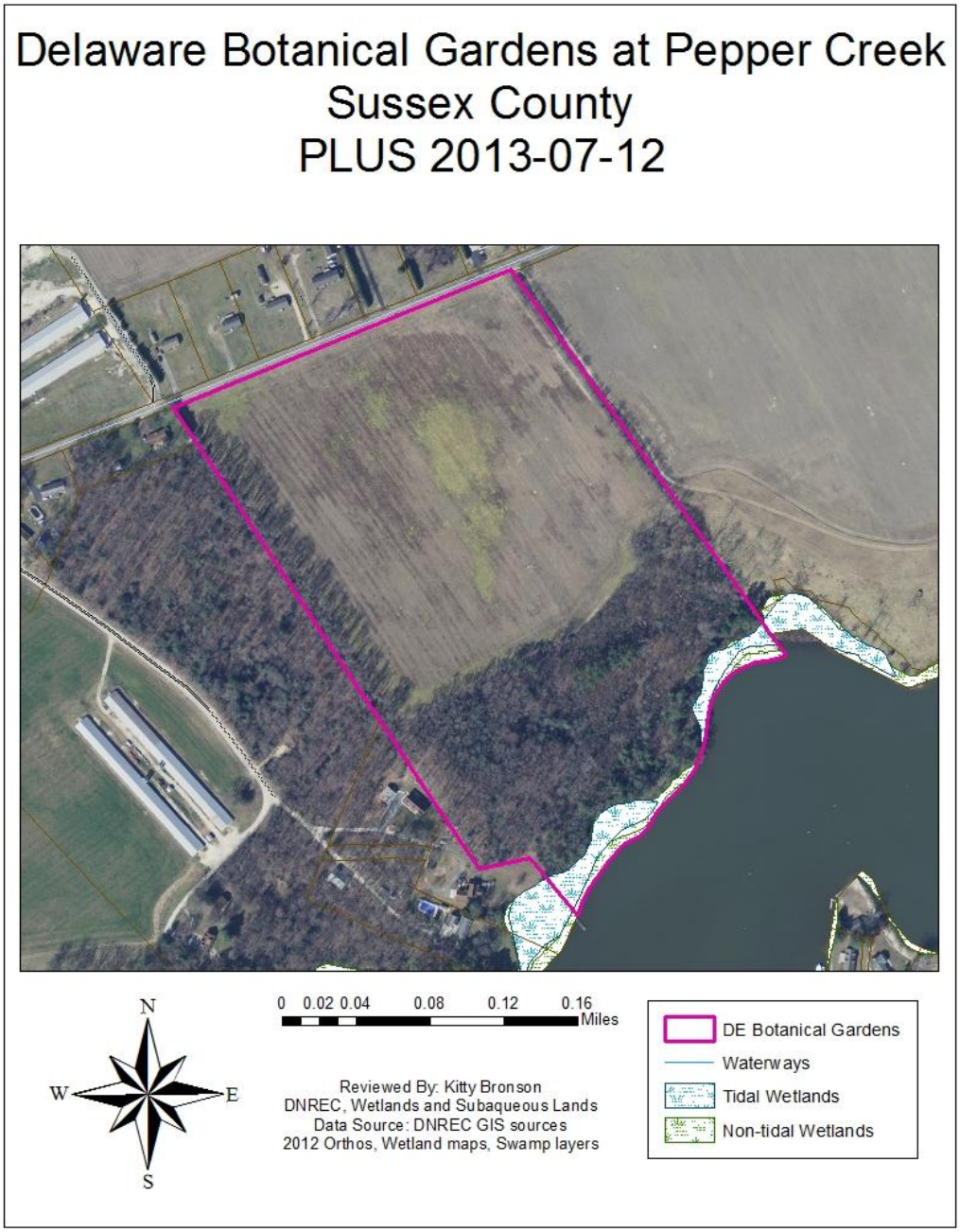
Wetlands

- State regulated wetlands ARE located on this property based on a review of the State wetland maps. Please refer to State Wetland map number 437. State regulated wetlands are those wetlands identified on the State's official State Regulated Wetland Maps. Any activity in State regulated wetlands may require a permit from DNREC's Wetlands and Subaqueous Lands Section. DNREC suggests a Jurisdictional Determination (JD) be done for this site since there are planned impacts. Please contact DNREC regarding the JD application. Additional information about State regulated wetlands is available by contacting the Wetlands and Subaqueous Lands Section at (302) 739-9943 or on line at http://www.dnrec.delaware.gov/wr/Services/Pages/WetlandsAndSubaqueousLands.aspx.

- State regulated subaqueous lands ARE likely to be located on this property based on a review of aerial photographs, State Wetland Mapping Project (SWMP) maps, Soil Surveys and USGS topographic maps. Upon review of the GIS layers, Perennial Rivers/Streams are located on the property. State subaqueous lands include all tidal waters (up to the mean high water line), most non-tidal rivers, streams, lakes, ponds, bays and inlets (up to the ordinary high water line), most perennial streams and ditches and many intermittent streams and ditches. An on-site inspection by a representative of the Wetlands and Subaqueous Lands Section or an environmental consultant is recommended to determine the limits of jurisdictional State subaqueous lands. Upon review of the GIS layers and from the PLUS plans, subaqueous lands will be impacted and permits may be needed. Additional information about State regulated subaqueous lands is available by contacting the Wetlands and Subaqueous Lands Section at (302) 739-9943 or on line at http://www.dnrec.delaware.gov/wr/Services/Pages/WetlandsAndSubaqueousLands.aspx.

- Waters of the U.S. regulated by the U.S. Army Corps of Engineers ARE likely to be located on this property based on a review of aerial photographs, SWMP maps, Soil Surveys and USGS topographic maps. According to DNREC GIS SWMP maps, there are considerable wetlands regulated by the U.S. Army Corps of Engineers. DNREC suggests contacting them for an on-site inspection. Waters of the United States include the following: navigable waters of the United States; wetlands; tributaries to navigable waters of the United States, including adjacent wetlands and lakes and ponds; interstate waters and their tributaries, including adjacent wetlands; and all other waters of the United States not identified above, such as isolated wetlands, intermittent streams, and other waters that are not part of a tributary system to interstate waters or to navigable waters of the United States, where the use, degradation or destruction of these waters could affect interstate or foreign commerce.

  The extent of Federal jurisdiction over Waters of the United States is determined by the U.S. Army Corps of Engineers and is based on site specific conditions. Therefore, an on-site inspection by an environmental consultant is recommended to determine if waters of the U.S. are located on the property and the limits of Federal jurisdictional. The U.S. Army Corps of Engineers can be contacted at (215) 656-6728 or online at http://www.nap.usace.army.mil/cenap-op/regulatory/regulatory.htm.


Delaware Botanical Gardens at Pepper Creek
Sussex County
PLUS 2013-07-12
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Miles
Reviewed By: Kitty Bronson
DNREC, Wetlands and Subaqueous Lands
Data Source: DNREC GIS sources
2012 Orthos, Wetland maps, Swamp layers
DE Botanical Gardens
Waterways
Tidal Wetlands
Non-tidal Wetlands

- The project is located in the *high nutrient reduction* zone of the greater Inland Bays watershed. In this watershed, Total Maximum Daily Load (TMDL) pollutant reduction targets have been developed by the State of Delaware (under the auspices of Section 303(d) of the 1972 Federal Clean Water Act) for nutrients (e.g., nitrogen, phosphorus), and bacteria. A TMDL is the maximum level of pollution allowed for a given pollutant below which a "water quality limited water body" can assimilate and still meet State water quality standards (e.g., dissolved oxygen, nutrients, and bacteria; *State of Delaware Surface Water Quality Standards, as amended July 11, 2004*) to the extent necessary to support use goals such as, swimming, fishing, drinking water and shell fish harvesting. The TMDL for the *high reduction* zone of the Inland Bays watershed calls for 85 percent reduction in nitrogen and 65 percent reduction in phosphorus from baseline conditions. The TMDL also calls for a 40 percent (17 percent in marine waters) reduction in bacteria from baseline conditions.

- A nutrient management plan is required under the *Delaware Nutrient Management law (3 Del. Chapter 22)* for all persons or entities who apply nutrients to lands or areas of open space in excess of 10 acres. This project's open space may exceed this 10-acre threshold. Please contact the Delaware Nutrient Management Program at 739-4811 for further information concerning compliance requirements or view the following web link for additional information: http://dda.delaware.gov/nutrients/index.shtml

- The Inland Bays Pollution Control Strategy (PCS) and the accompanying regulations were finalized by order of the DNREC Secretary on October 2008. These regulations can be reviewed at http://regulations.delaware.gov/documents/November2008c.pdf and background information, guidance documents, and mapping tools can be retrieved from http://www.dnrec.state.de.us/water2000/Sections/Watershed/ws/ib_pcs.htm.

Water Supply

- The information provided indicates that Tidewater Utilities will provide water to the proposed projects through a public water system. DNREC files reflect that Tidewater Utilities does not currently hold a certificate of public convenience and necessity (CPCN) to provide public water in these areas. They will need to file an application for a CPCN with the Public Service Commission, if they have not done so already. Information on CPCN requirements and applications can be obtained by contacting the Public Service Commission at 302-736-7547. Should an on-site Irrigation well be needed, a minimum isolation distance of 100 feet is required between the well and any potential source of contamination, such as a septic tank and sewage disposal area. The Division of Water Resources will consider applications for the construction of on-site wells provided the wells can be constructed and located in compliance with all requirements of the Regulations Governing the Construction and Use of Wells. A well construction permit must be obtained prior to constructing any wells.

- Should dewatering points be needed during any phase of construction, a dewatering well construction permit must be obtained from the Water Supply Section prior to

construction of the well points. In addition, a water allocation permit will be needed if the pumping rate will exceed 50,000 gallons per day at any time during operation.

- All well permit applications must be prepared and signed by licensed water well contractors, and only licensed well drillers may construct the wells. Please factor in the necessary time for processing the well permit applications into the construction schedule. Dewatering well permit applications typically take approximately four weeks to process, which allows the necessary time for technical review and advertising.

Sediment and Stormwater Program

- A detailed sediment and stormwater plan will be required prior to any land disturbing activity taking place on the site. Contact the reviewing agency to schedule a project application meeting to discuss the sediment and erosion control and stormwater management components of the plan as soon as practicable. The site topography, soils mapping, pre- and post- development runoff, and proposed method(s) and location(s) of stormwater management should be brought to the meeting for discussion. The plan review and approval as well as construction inspection will be coordinated through the Sussex Conservation District. Contact Jessica Watson at the Sussex Conservation District at (302) 856-2105 for details regarding submittal requirements and fees. (Title 7, Delaware Code, Chapter 40 and Delaware Regulations, Title 7, Administrative Code, 5101)

Flood Management

- In regards to the floodplain boundary, the site plan correctly depicts the current effective floodplain with base flood elevation (BFE) of 7. DNREC would like to remind the consultant that the floodplain boundary should not be depicted along the corresponding site topography; it should be shown as it is on the FIRM. We would also like to inform you that the floodplain in this area is being revised. FEMA has produced a preliminary FIRM map showing the base flood elevation going up to 8 from 7. The floodplain boundary is also increasing on this property. The preliminary data can be viewed at http://maps.riskmap3.com/DE/sussex/

Air Quality

- The applicant shall comply with all applicable Delaware air quality regulations. Please note that the following regulations in Table 1 – Potential Regulatory Requirements may apply to your project:

Table 1: Potential Regulatory Requirements	
Regulation	**Requirements**
7 DE Admin. Code 1106 - Particulate Emissions from Construction and Materials Handling	○ Use dust suppressants and measures to prevent transport of dust off-site from material stockpile, material movement and use of unpaved roads. ○ Use covers on trucks that transport material to and from site to prevent visible emissions.
7 DE Admin. Code 1113 – Open Burning	• Prohibit open burns statewide during the Ozone Season from May 1-Sept. 30 each year. • Prohibit the burning of land clearing debris. • Prohibit the burning of trash or building materials/debris.
7 DE Admin. Code 1135 – Conformity of General Federal Actions to the State Implementation Plan	• Require, for any "federal action," a conformity determination for each pollutant where the total of direct and indirect emissions would equal or exceed any of the de minimus levels (See Section 3.2.1)
7 DE Admin. Code 1141 – Limiting Emissions of Volatile Organic Compounds from Consumer and Commercial Products	• Use structural/ paint coatings that are low in Volatile Organic Compounds. • Use covers on paint containers when paint containers are not in use.
7 DE Admin. Code 1144 – Control of Stationary Generator Emissions	• Ensure that emissions of nitrogen oxides (NO_x), non-methane hydrocarbons (NMHC), particulate matter (PM), sulfur dioxide (SO_2), carbon monoxide (CO), and carbon dioxide (CO_2) from emergency generators meet the emissions limits established. (See section 3.2). • Maintain recordkeeping and reporting requirements.
7 DE Admin. Code 1145 – Excessive Idling of Heavy Duty Vehicles	• Restrict idling time for trucks and buses having a gross vehicle weight of over 8,500 pounds to no more than three minutes.

For a complete listing of all Delaware applicable regulations, please look at our website: http://www.awm.delaware.gov/AQM/Pages/AirRegulations.aspx.

Recommendations/Additional Information

This section includes a list of site specific suggestions that are intended to enhance the project. These suggestions have been generated by the State Agencies based on their expertise and subject area knowledge. **These suggestions do not represent State code requirements.** They are offered here in order to provide proactive ideas to help the applicant enhance the site design, and it is hoped **(but in no way required)** that the applicant will open a dialogue with the relevant agencies to discuss how these suggestions can benefit the project.

Department of Transportation – Contact Bill Brockenbrough 760-2109

- Please refer to the DelDOT website for guidance as to whether a pre-submittal meeting is required and how to prepare for one. That guidance is available at http://www.deldot.gov/information/business.

- The plan accompanying the PLUS application shows bus loading spaces but not bus parking spaces. On-site bus parking should be shown on the plan. If remote bus parking would be provided, a note stating that and providing the location of the remote parking should be added.

- Please check to determine if any utilities will need to be relocated as part of this project.

- The developer should anticipate a requirement that any sub-station and/or wastewater facilities have access from the internal subdivision streets with no direct access to the State-maintained highway. That does not appear to be a concern on this plan.

- All PLUS comments should be addressed prior to submitting record, subdivision or entrance plans for review.

- On June 27, 2012, a letter was sent out explaining the changes in the way checks should be submitted to DelDOT. A copy of the letter is available at http://www.deldot.gov/information/business/subdivisions/PaymentProcedure.pdf.

- The developer should anticipate additional comments once the entrance plans are submitted for review.

- On June 27, 2012, a letter was sent out explaining the changes in the way checks should be submitted to DelDOT. A copy of the letter is available at http://www.deldot.gov/information/business/subdivisions/PaymentProcedure.pdf.

- DelDOT anticipates having additional comments once the site and entrance plans are submitted for review.

Department of Natural Resources and Environmental Control – Contact Kevin Coyle 735-3495

Soils Assessment

- Based on NRCS soils survey mapping update, the only mapping unit of concern is Hurlock (HvA). Hurlock is a poorly-drained wetland associated (hydric) soil that has severe limitations for development (Figure 1). DNREC strongly recommends that the applicant avoid construction in the immediate vicinity of the Hurlock soil mapping unit

- The Statewide Wetland Mapping Project (SWMP) often uses the soil survey as the basis for mapping and delineating wetlands The presence of a hydric soil is one of three key parameters that must be met in order to meet jurisdictional wetland requirements (as specified by the USACOE). The other parameters are hydrophytic vegetation and hydrology. Hence the presence of hydric soils is a correlate with wetland presence. Although the removal of hydrophytic vegetation may change the jurisdictional status of a wetland to a non-wetland, it does not mitigate the environmental consequences of such actions. That is, building on hydric soils (i.e., Hurlock) may increase the potential for future on-site and off-site flooding events, while increasing the volume of pollutant-laden surface water runoff and discharges to surface water bodies (streams, ponds, and ocean) and groundwater.

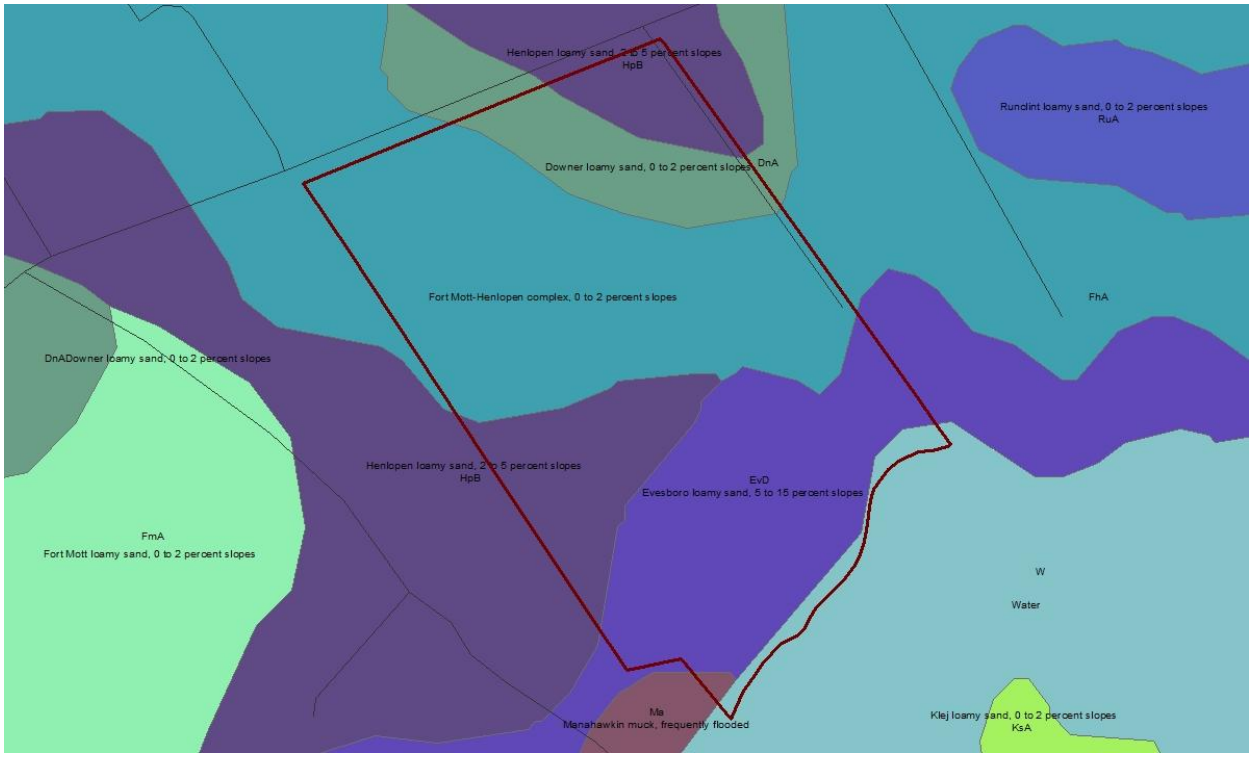


Figure 1: NRCS soil survey mapping update in the immediate vicinity of the proposed construction

Additional information on TMDLs and water quality

- Compliance with the specified TMDL nutrient and bacterial reduction requirements specified for the Inland Bays watershed can be facilitated by the strategies and

  requirements described in the Inland Bays Pollution Control Strategy (PCS) and the implementation/adherence to the following recommended BMPs:

- A United States Corps of Engineers (USACE) approved wetlands delineation is strongly recommended. According to information presented in the PLUS application, an approved USACE wetlands delineation has not been conducted. It should also be noted that compliance with USACE regulations does not preclude compliance with State wetland-regulatory requirements.

- Based on a review of existing buffer research by Castelle et al. (Castelle, A. J., A. W. Johnson and C. Conolly. 1994. *Wetland and Stream Buffer Requirements – A Review.* J. Environ. Qual. 23: 878-882.), an adequately-sized buffer that effectively protects wetlands and streams, in most circumstances, is about 100 feet in width. In recognition of this research and the need to protect water quality, the Watershed Assessment Section recommends that the applicant maintain/establish a minimum 100-foot upland buffer (planted in native vegetation) from all water bodies (including ditches) and wetlands (field delineated and approved by the USACE).

- Since the project narrative suggests the primary purpose of this botanical garden project is to promote beauty and tranquility, DNREC suggests that preservation of the existing native forested buffer/cover would provide far more beauty and tranquility than an amphitheater, nature center, or any other building constructed here by man. DNREC also believes that removal of the existing forested buffer/cover would further contribute to increased nutrient and bacterial pollutant runoff to Pepper Creek and the greater Inland Bays watershed, while further contributing to lower water quality and increased degradation of those aquatic ecosystems associated with these water bodies. Therefore, DNREC strongly discourages removing the existing native forested buffer/cover to accommodate any building structures.

- DNREC strongly recommends that the applicant avoid all hydric soil mapping units (e.g., Manahawkin). Building on such soils is likely to contribute to an increased probability of future flooding problems.

- According to the conceptual plot plan, the applicant intends to install two storm water ponds in this parcel. DNREC strongly advises against the installation of any new additional open-water ponds because they will contribute to increases in nuisance algae, geese and mosquitoes. DNREC strongly recommends Green technology storm water management be utilized in lieu of open-water storm water management ponds.

- Calculate post-construction surface imperviousness with all forms of created (or constructed) surface imperviousness (e.g., rooftops, driveways, parking lots, sidewalks, open-water storm water management structures, ponds, and roads) included in the calculation.

- Wherever practicable, we strongly advise the use of pervious paving materials (instead of conventional asphalt and concrete) as a BMP(s) to reduce the impacts from all forms of created surface imperviousness.

- DNREC encourages the use of rain gardens, and green-technology storm water management structures (in lieu of open-water management structures) as BMPs to mitigate or reduce nutrient and bacterial pollutant impacts via runoff/discharges from impervious surfaces.

- The applicant should voluntarily assess nutrient and bacterial pollutant loading at the preliminary project design phase. To this end, the Watershed Assessment Section has developed a methodology known as the "Nutrient Load Assessment protocol." The protocol is a tool used to assess changes in nutrient loading (e.g., nitrogen and phosphorus) that result from the conversion of individual or combined land parcels to a different land use(s), while providing applicants with quantitative information about their project's impact(s) on baseline water quality. We strongly encourage the applicant/developer use this protocol to help them design and implement the most effective BMPs. Please contact Jen Walls or John Martin at (Division of Watershed Stewardship) at 302-739-9939 for more information on the protocol.

Forest Preservation

- The applicant should consider modifications of site plans to minimize loss of forest acres and to minimize impacts to wetlands.

Additional information on air quality

- DNREC encourages developers and builders to consider all sustainable growth practices in their design, but we believe, however, that the air quality impacts associated with the project should be completely considered. New businesses may emit, or cause to be emitted, air contaminants into Delaware's air, which will negatively impact public health, safety and welfare. These negative impacts are attributable to:

    - Emissions that form ozone and fine particulate matter; two pollutants relative to which Delaware currently violates federal health-based air quality standards,
    - The emission of greenhouse gases which are associated with climate change, and
    - The emission of air toxics.

- Air emissions generated from new homes include emissions from the following activities:

    - Area sources such as painting, maintenance equipment and the use of consumer products like roof coatings and roof primers.
    - The generation of electricity needed to support the new homes, and
    - All transportation activity.

- DNREC encourages sustainable growth practices that:

    - Control sprawl;
    - Preserve rural and forested areas;

  - Identify conflicting land use priorities;
  - Encourage growth on previously developed sites and denser communities while at the same time protect our diminishing land base;

- Coordinate transportation, housing, environment, and climate protection plans with land use plans; and demonstrate that communities can achieve the qualities of privacy, community, and contact with nature without degrading the natural environment or generating unacceptable environmental costs in terms of congestion, use of natural resources, or pollution.

- Additional measures may be taken to substantially reduce the air emissions identified above. These measures include:

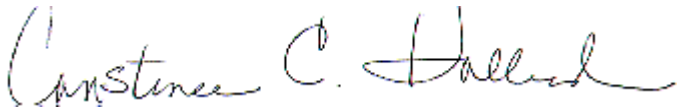
  - **Constructing with only energy efficient products.** Energy Star qualified products are up to 30% more energy efficient. Savings come from building envelope upgrades, high performance windows, controlled air infiltration, upgraded heating and air conditioning systems, tight duct systems and upgraded water-heating equipment. Every percentage of energy efficiency translates into a percent reduction in pollution. The Energy Star Program is excellent way to save on energy costs and reduce air pollution.
  - **Offering geothermal and/or photo voltaic energy options.** These systems can significantly reduce emissions from electrical generation, and from the use of oil or gas heating equipment.
  - **Providing tie-ins to the nearest bike paths and links to any nearby mass transport system**. These measures can significantly reduce mobile source emissions. **For every vehicle trip that is replaced by the use of a sidewalk, a bike path or mass transit, 7 pounds of VOC and 11.5 pounds of NOx are reduced each year.**
  - **Using retrofitted diesel engines during construction**. This includes equipment that are on-site as well as equipment used to transport materials to and from site.
  - **Using pre-painted/pre-coated flooring, cabinets, fencing, etc**. These measures can significantly reduce the emission of VOCs from typical architectural coating operations.
  - **Planting trees in vegetative buffer areas**. Trees reduce energy emissions by cooling during the summer and by providing wind breaks in the winter, thereby reducing air conditioning needs by up to 30 percent and saving 20 to 50 percent on fuel costs.

- This is a partial list, and there are additional things that can be done to reduce the impact of the development. The applicant should submit a plan to the DNREC DAQ which address the above listed measures, and that details all of the specific emission mitigation measures that will be incorporated into this project.

Following receipt of this letter and upon filing of an application with the local jurisdiction, the applicant shall provide to the local jurisdiction and the Office of State Planning Coordination a written response to comments received as a result of the pre-application process, noting whether comments were incorporated into the project design or not and the reason therefore.

Thank you for the opportunity to review this project. If you have any questions, please contact me at 302-739-3090.

Sincerely,



Constance C. Holland, AICP
Director, Office of State Planning Coordination

CC: Sussex County
Town of Dagsboro